

1           1.       A method of interpreting a query formed of at least a first term and a  
2       second term with respect to a database of items, comprising:  
  
3       identifying at least one candidate single-term interpretation for the first term;  
  
4       identifying at least one candidate single-term interpretation for the second term;  
  
5       identifying one or more candidate multiple-term interpretations, wherein a  
6       candidate multiple-term interpretation is a combination of candidate single-term  
7       interpretations;  
  
8       providing a plurality of semantic approaches for associating one or more of the  
9       candidate multiple-term interpretations with items in the database; and  
  
10      determining a contextual score for each candidate multiple-term interpretation  
11      using the database and at least one of said semantic approaches.

1           2.       The method of claim 1, wherein the plurality of semantic approaches  
2       include treating a candidate multiple-term interpretation as a conjunction.  
  
1           3.       The method of claim 1, wherein the plurality of semantic approaches  
2       include treating a candidate multiple-term interpretation as a disjunction.  
  
1           4.       The method of claim 1, wherein the plurality of semantic approaches  
2       include partially matching a candidate multiple-term interpretation.  
  
1           5.       The method of claim 1, wherein the plurality of semantic approaches  
2       include a disjunctive approach, a conjunctive approach and a partial match approach.

1           6.       The method of claim 1, wherein for at least one candidate multiple-term  
2 interpretation the contextual score incorporates information about the semantic approach  
3 that is used.

1           7.       The method of claim 6, wherein incorporating information about the  
2 semantic approach includes using a measure of the number of terms in the candidate  
3 multiple-term interpretation that are in an associated result set.

1           8.       The method of claim 7, wherein using a measure of the number of terms in  
2 the candidate multiple-term interpretation that are in an associated result set is a dominant  
3 factor in determining a contextual score.

1           9.       The method of claim 1, wherein determining a contextual score for each  
2 candidate multiple-term interpretation includes using a first of said plurality of semantic  
3 approaches for identifying an associated result set for a first candidate multiple-term  
4 interpretation and a second of said plurality of semantic approaches for identifying an  
5 associated result set for a second candidate multiple-term interpretation.

1           10.      The method of claim 1, wherein determining a contextual score for each  
2 candidate multiple-term interpretation includes applying a first of said plurality of  
3 semantic approaches for identifying a first associated result set and a second of said  
4 plurality of semantic approaches for identifying a second associated result set for a first  
5 candidate multiple-term interpretation and selecting between the first of said plurality of  
6 semantic approaches and the second of said plurality of semantic approaches for  
7 determining the contextual score for the first candidate multiple-term interpretation.

1           11.      A method of interpreting a query formed of at least a first term and a  
2 second term with respect to a database of items, comprising:

3 identifying at least one candidate single-term interpretation for the first term;

4 identifying at least one candidate single-term interpretation for the second term;

5 pruning the candidate single-term interpretations;

6 identifying one or more candidate multiple-term interpretations, wherein a

7 candidate multiple-term interpretation is a combination of candidate single-term

8 interpretations that have not been pruned; and

9 determining a contextual score for each candidate multiple-term interpretation

10 using the database.

1       12.     The method of claim 11, wherein pruning includes eliminating each

2 candidate single-term interpretation to which insufficient items in the database

3 correspond.

1       13.     The method of claim 12, wherein eliminating each candidate single-term

2 interpretation to which insufficient items in the database correspond comprises generating

3 a query that identifies a maximal result set of the candidate single-term interpretations,

4 evaluating an intersection query for each candidate single-term interpretation with the

5 maximal result set to identify results for the intersection query, and eliminating each

6 candidate single-term interpretation for which the intersection query yields fewer results

7 than a threshold.

1       14.     The method of claim 13, wherein the threshold is 1.

1       15.     The method of claim 12, wherein pruning includes determining a maximal

2 result set of the candidate single-term interpretations.

1        16. The method of claim 12, wherein eliminating each candidate single-term  
2 interpretation to which insufficient items in the database correspond includes identifying  
3 results of a union of all of the potential candidate multiple-term interpretations, and  
4 eliminating candidate single-term interpretations that do not have associated items in the  
5 results of the union.

1        17. The method of claim 12, wherein eliminating each candidate single-term  
2 interpretation to which insufficient items in the database correspond includes identifying  
3 results of a union of all of the potential candidate multiple-term interpretations, and  
4 eliminating candidate single-term interpretations that have fewer associated items in the  
5 results of the union than a threshold.

1        18. The method of claim 11, further comprising determining a context-  
2 independent score for each candidate single-term interpretation, wherein pruning includes  
3 using the context-independent scores of the candidate single term interpretations for  
4 selecting candidate single-term interpretations to prune.

1        19. A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5              identify at least one candidate single-term interpretation for the first term;  
6              identify at least one candidate single-term interpretation for the second term;  
7              identify one or more candidate multiple-term interpretations, wherein a candidate  
8 multiple-term interpretation is a combination of candidate single-term interpretations;

9 provide a plurality of semantic approaches for associating candidate multiple-term  
10 interpretations with items in the database; and

11 determine a contextual score for each candidate multiple-term interpretation using  
12 the database and at least one of said semantic approaches.

1 20. The computer program product of claim 19, wherein for at least one  
2 candidate multiple-term interpretation the contextual score incorporates information  
3 about the semantic approach that is used.

1 21. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a conjunctive approach.

1 22. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a disjunctive approach.

1 23. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a partial match approach.

1 24. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a disjunctive approach, a conjunctive approach and a partial  
3 match approach.

1 25. The computer program product of claim 19, wherein instructions for  
2 causing a computer to incorporate information about the semantic approach used include  
3 instructions for using a measure of the number of terms in the candidate multiple-term  
4 interpretation that are in an associated result set.

1 26. The computer program product of claim 25, wherein using a measure of  
2 the number of terms in the candidate multiple-term interpretation that are in an associated  
3 result set is a dominant factor in determining a contextual score.

1        27. The computer program product of claim 19, wherein instructions for  
2 causing a computer to determine a contextual score for each candidate multiple-term  
3 interpretation include instructions for using a first of said plurality of semantic  
4 approaches for identifying an associated result set for a first candidate multiple-term  
5 interpretation and a second of said plurality of semantic approaches for identifying an  
6 associated result set for a second candidate multiple-term interpretation.

1        28. The computer program product of claim 19, wherein instructions for  
2 causing a computer to determine a contextual score for each candidate multiple-term  
3 interpretation include instructions for applying a first of said plurality of semantic  
4 approaches for identifying a first associated result set and a second of said plurality of  
5 semantic approaches for identifying a second associated result set for a first candidate  
6 multiple-term interpretation and selecting between the first of said plurality of semantic  
7 approaches and the second of said plurality of semantic approaches for determining the  
8 contextual score for the first candidate multiple-term interpretation.

1        29. A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5        identify at least one candidate single-term interpretation for the first term;  
6        identify at least one candidate single-term interpretation for the second term;  
7        prune the candidate single-term interpretations;

8           identify one or more candidate multiple-term interpretations, wherein a candidate  
9       multiple-term interpretation is a combination of candidate single-term interpretations that  
10      have not been pruned; and

11           determine a contextual score for each candidate multiple-term interpretation using  
12      the database.

1           30.     The computer program product of claim 29, wherein instructions for  
2       causing a computer to prune include instructions for eliminating each candidate single-  
3       term interpretation to which insufficient items in the database correspond.

1           31.     The computer program product of claim 30, wherein eliminating each  
2       candidate single-term interpretation to which insufficient items in the database  
3       correspond further includes generating a query that identifies a maximal result set of the  
4       candidate single-term interpretations, evaluating an intersection query for each candidate  
5       single-term interpretation with the maximal result set to identify results for the  
6       intersection query, and eliminating each candidate single-term interpretation for which  
7       the intersection query yields fewer results than a threshold.

1           32.     The computer program product of claim 31, wherein the threshold is 1.

1           33.     The computer program product of claim 30, wherein instructions for  
2       causing a computer to prune include instructions for determining a maximal result set of  
3       the candidate single-term interpretations.

1           34.     The computer program product of claim 30, wherein eliminating each  
2       candidate single-term interpretation to which insufficient items in the database  
3       correspond includes identifying results of a union of all of the potential candidate

4 multiple-term interpretations, and eliminating candidate single-term interpretations that  
5 do not have associated items in the results of the union.

1       35. The computer program product of claim 30, wherein eliminating each  
2 candidate single-term interpretation to which insufficient items in the database  
3 correspond includes identifying results of a union of all of the potential candidate  
4 multiple-term interpretations, and eliminating candidate single-term interpretations that  
5 have fewer associated items in the results of the union than a threshold.

1       36. The computer program product of claim 30, wherein instructions for  
2 causing a computer to prune include instructions for using the context-independent scores  
3 for selecting single-term interpretations to prune.

1       37. A method of interpreting a query formed of at least a first term and a  
2 second term with respect to a database of items, comprising:  
3           identifying at least one candidate single-term interpretation for the first term;  
4           identifying at least one candidate single-term interpretation for the second term;  
5           determining a context-independent score for each candidate single-term  
6           interpretation;

7           identifying one or more candidate multiple-term interpretations, wherein a  
8 candidate multiple-term interpretation is a combination of candidate single-term  
9 interpretations;

10          determining a combined context-independent score for each candidate multiple-  
11 term interpretation using the context-independent score for each candidate single-term  
12 interpretation in the candidate multiple-term interpretation;

13 providing a plurality of semantic approaches for associating one or more of the  
14 candidate multiple-term interpretations with items in the database;  
  
15 determining a contextual score for each candidate multiple-term interpretation  
16 using the database and at least one of said semantic approaches, wherein for at least one  
17 candidate multiple-term interpretation the contextual score incorporates information  
18 about the semantic approach that is used; and  
  
19 determining an overall score for each candidate multiple-term interpretation by  
20 using the contextual score and the combined context-independent score for the multiple-  
21 term interpretation.

1       38. A method of interpreting a query formed of at least a first term and a  
2 second term with respect to a database of items, comprising:  
  
3       identifying at least one candidate single-term interpretation for the first term;  
  
4       identifying at least one candidate single-term interpretation for the second term;  
  
5       determining a context-independent score for each candidate single-term  
6 interpretation;  
  
7       pruning the candidate single-term interpretations;  
  
8       identifying one or more candidate multiple-term interpretations, wherein a  
9 candidate multiple-term interpretation is a combination of candidate single-term  
10 interpretations that have not been pruned;

11           determining a combined context-independent score for each candidate multiple-  
12   term interpretation using the context-independent score for each candidate single-term  
13   interpretation in the multiple-term interpretation;

14           determining a contextual score for each candidate multiple-term interpretation  
15   using the database; and

16           determining an overall score for each candidate multiple-term interpretation by  
17   using the contextual score and the combined context-independent score for the multiple-  
18   term interpretation.

1           39.     A computer program product, residing on a computer readable medium,  
2   for use in interpreting queries composed of at least a first term and a second term relative  
3   to a database of items, the computer program product comprising instructions for causing  
4   a computer to:

5           identify at least one candidate single-term interpretation for the first term;  
6           identify at least one candidate single-term interpretation for the second term;  
7           determine a context-independent score for each candidate single-term  
8   interpretation;

9           identify one or more candidate multiple-term interpretations, wherein a candidate  
10   multiple-term interpretation is a combination of candidate single-term interpretations;

11           determine a combined context-independent score for each candidate multiple-term  
12   interpretation using the context-independent score for each candidate single-term  
13   interpretation in the multiple-term interpretation;

14 provide a plurality of semantic approaches for associating candidate multiple-term  
15 interpretations with items in the database;

16 determine a contextual score for each candidate multiple-term interpretation using  
17 the database and at least one of said semantic approaches, wherein for at least one  
18 candidate multiple-term interpretation the contextual score incorporates information  
19 about the semantic approach that is used; and

20 determine an overall score for each candidate multiple-term interpretation by  
21 using the contextual score and the combined context-independent score for the multiple-  
22 term interpretation.

1 40. A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5 identify at least one candidate single-term interpretation for the first term;

6 identify at least one candidate single-term interpretation for the second term;

7 determine a context-independent score for each candidate single-term  
8 interpretation;

9 prune the candidate single-term interpretations;

10 identify one or more candidate multiple-term interpretations, wherein a candidate  
11 multiple-term interpretation is a combination of candidate single-term interpretations that  
12 have not been pruned;

13           determine a combined context-independent score for each candidate multiple-term  
14   interpretation using the context-independent score for each candidate single-term  
15   interpretation in the multiple-term interpretation;  
  
16           determine a contextual score for each candidate multiple-term interpretation using  
17   the database; and  
  
18           determine an overall score for each candidate multiple-term interpretation by  
19   using the contextual score and the combined context-independent score for the multiple-  
20   term interpretation.